

App. No. 10/771,586

Amendment Dated June 9, 2005

Reply to Office Action of March 9, 2005

REMARKS/ARGUMENTS

The Office Action mailed March 9, 2005 has been received and the Examiner's comments carefully reviewed. Claims 1-20 are pending in this application. Claims 1-3, and 5-20 are rejected. Claim 4 is objected to. Applicants have amended claims 1, 15 and 18 to further clarify the invention. No new subject matter has been added. For at least the following reasons, Applicants respectfully submit that the pending claims are in condition for allowance, and notice to that effect is requested.

Objection to Claim 4

The Office Action objected to claim 4 as being dependent upon a rejected base claim, but noted this claim would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, second paragraph and to include all of the limitations of the base claim and any intervening claims.

Applicants are grateful for the Examiner's thorough review and have amended the base claim in accordance with the spirit of the Examiner's request. It is thus believed that dependant claim 4 is in proper condition of allowance, and notice to that effect is requested.

Rejection of Claims 1-20 under 35 U.S.C. § 112, second paragraph

The Office Action rejected Claims 1-20 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner stated that the proximity of the phrases

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"substantially at the same time" and "pre-sampled" was confusing due to connotations of the phrases.

Applicant is grateful for the Examiner's thorough review and has amended claims 1, 15 and 18 to clarify the subject matter of the invention and not to overcome any other basis of rejection. Claims 2-14, 16, 17, 19 and 20 are rejected as including the indefiniteness of the claims from which they depend. Claims 2-14 depend upon and further limit claim 1, which has been amended for clarity. Claims 16 and 17 depend upon and further limit claim 15, which has been amended for clarity. Claims 19 and 20 depend upon and further limit claim 18, which has been amended for clarity. It is believed that claim 2-14, 16, 17, 19 and 20 are not indefinite since the amended claims from which they depend are now believed to be in proper form. Thus, it is believed that claims 1- 20 are in proper form for allowance and it is respectfully requested that the rejection under 35 U.S.C. § 112 be withdrawn.

Rejection of Claims 1-3, 15 and 18 under 35 U.S.C. 102(e)

Claims 1-3, 15 and 18 are rejected under 35 U.S.C. § 102(e) as anticipated by *Opris* (U.S. Patent No. 6,801,151 B1). Applicant respectfully disagrees for the reasons stated below.

Regarding claim 1, applicants submit that claim 1 as amended is allowable because *Opris* fails to disclose an MDAC circuit that is arranged to sample a reference voltage ( $V_{REF}$ ) and a sampled voltage ( $V_{SHA}$ ) at substantially the same time. *Opris* teaches an MDAC receiving such signals on opposite, non-overlapping clock phases. *Opris* describes a gain stage sampling into capacitor 514 the output of the comparator 510 the during a first clock phase while the gain stage

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does not sample into capacitor 513 the output of the sample/hold stage (amplifier module 520) until the second clock phase (*See Opris* at col. 5, lines 1-30). In *Opris*, the sampling from the output of the sample/hold stage (amplifier module 520) is accomplished by the closing of switches S1A and S1B, while the sampling of the output of comparator device 510 is accomplished by the closing of switch S2A. Since switches S1A and S1B are closed only during the first phase of the clock, and the switch S2A is closed only during the second phase of the clock, the two signals cannot be sampled by the MDAC at substantially the same time as is described in Applicant's claim 1. Accordingly, *Opris* fails to meet the structural limitations of Applicant's claim 1. For at least this reason, claim 1 is submitted to be patentable and allowance is solicited.

With regard to Applicant's amended claims 15 and 18, amended claims 15 and 18 also contain similar limitations as Applicant's claim 1 and are submitted to be patentable for at least the reasons stated above.

With regard to Applicant's claims 2 and 3, claims 2 and 3 depend from amended claim 1 and are submitted to be patentable for at least the reasons stated above.

Rejection of Claims 5-14, 16, 17, 19 and 20 under 35 U.S.C. § 103(a)

Claims 5-14, 16, 17, 19 and 20 are rejected under 35 U.S.C. § 103(a) as unpatentable over *Opris* in view of *Quinn* (U.S. Patent No. 6,784,824B1). Applicant respectfully disagrees.

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Claims 5-14, 16, 17, 19 and 20 depend from and further limit amended claims 1, 15 and 18 that applicant submits are allowable. Dependant claims 5-14, 16, 17, 19 and 20 are believed allowable for at least that reason, in addition to any further recitations that they contain.

Dependant claims 5-14, 16, 17, 19 and 20 also contain the additional limitation, with respect to claims 1, 15 and 18, of an MDAC circuit that is arranged to sample the reference voltage ( $V_{REF}$ ) and the sampled voltage ( $V_{SHA}$ ) at substantially the same time. Applicants submit that all of the cited references fail to teach or suggest an MDAC circuit that is arranged to sample the reference voltage ( $V_{REF}$ ) and the sampled voltage ( $V_{SHA}$ ) at substantially the same time. Instead, the cited references teach a gain stage that samples a reference voltage and an input voltage on opposite, non-overlapping clock phases and thus not at the same time. Moreover, the turn non-overlapping, as understood by those of ordinary skill in the art, requires that the switching mechanisms are not operated at substantially the same time.


In one example, *Opris* describes a gain stage that samples the output of the comparator 510 during a first clock phase while the gain stage does not sample the output of the sample/hold stage (amplifier module 520) until the second clock phase (See *Opri* at col. 5, lines 1-30). Similar to *Opris*, *Quinn* samples  $V_{in}$  on  $C_s$  606 during a first clock phase (clk1), while a reference voltage is not sampled until switches 614, 616, 618 close during a second clock phase (clk2) (See *Quinn* at col. 8, lines 20-30). Accordingly, applicants believe that all cited references of record fail to meet the structural limitations of claims 5-14, 16, 17, 19 and 20. For at least these reasons, claims 5-14, 16, 17, 19 and 20 are submitted to be patentable and a notice of allowance is earnestly solicited.

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In view of the foregoing amendments and remarks, all pending claims are believed to be allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for the applicant at the telephone number provided below.

Respectfully submitted,

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